Index to
JOURNAL OF HEAT TRANSFER
Volume 82, 1960

The Journal of Heat Transfer for 1960 was issued quarterly in February, May, August, and November.

Issue	Page Numbers
February	1–76
May	77–154
August	155–264
November	265–398

A

ACOUSTICS
Flow separation and acoustic effects (a literature survey) 155

ALBERS, L. U.
Apparent emissivity and heat transfer in a long cylindrical hole 253

ALTMAN, M.
Local and average heat transfer and pressure drop for refrigerants evaporating in horizontal tubes 189

ANDERSON, A. D.
Experimental study of the effects of non-uniform wall temperature on heat transfer in laminar and turbulent axisymmetric flow along a cylinder 349

ANDERSON, S. W.
Local and average heat transfer and pressure drop for refrigerants evaporating in horizontal tubes (D) 196

ATMOSPHERES. *See* GASES

B

BAKER, MERL
Local and average heat transfer and pressure drop for refrigerants evaporating in horizontal tubes (D) 197

BALDWIN, LIONEL V.
Heat transfer from transverse and yawed cylinders in continuum, slip, and free molecule air flows 77

BANKOFF, S. G.
Variable density single-fluid model for two-phase flow with particular reference to steam-water flow 265

BARTAS, J. G.
Radiation fin effectiveness 73

BARTZ, D. R.
Predictions of thermal properties 162

BECK, JAMES V.
Effect of thermocouple cavity on heat sink temperature 27

BEVANS, J. T.
Geometric factors for radiative heat transfer through an absorbing medium in Cartesian co-ordinates 360
Radiant interchange within an enclosure
Part 1 Absorption and emission behavior of gases 1
Part 2 General interchange equations .. 8
Part 3 A method for solving multinode networks and a comparison of the band energy and gray radiation approximations 14

BOGGS, J. H.
Heat transfer to Freon 12 near the critical state in a natural-circulation loop 221

BOUNDARY LAYER
Conical turbulent boundary-layer experiments and a correlation with flat plate data 94
Effects of initial boundary-layer thickness on a tangential injection system 392
Heat transfer and effectiveness for a turbulent boundary layer with tangential fluid injection 303
Interferometric method of studying boundary-layer oscillations 263

BRADFIELD, W. S.
Conical turbulent boundary-layer experiments and a correlation with flat plate data 94

BROVARNEY, S. W.
Heat transfer to boiling mercury 387

C

CARNAVOS, T. C.
Thermal-contact resistance in finned tubing 279

CASTING
Freezing of a growing liquid column 37

CESS, R. D.
Magnetohydrodynamic effects upon heat transfer for laminar flow across a flat plate 87

CONDENSATION. *See* HEAT TRANSFER

CONDUCTIVITY. *See* HEAT TRANSFER

CONVECTION. *See* HEAT TRANSFER

COOLING SYSTEMS
Heat transfer and effectiveness for a turbulent boundary layer with tangential fluid injection 303

CYLINDERS. *See* HEAT TRANSFER

D

DEISSLER, R. G.
Variable fluid-property effects 160

DUNKLE, R. V.
Radiant interchange within an enclosure
Part 1 Absorption and emission behavior of gases 1
Part 2 General interchange equations .. 8
Part 3 A method for solving multinode networks and a comparison of the band energy and gray radiation approximations 14
Spectral characteristics of fabrics from 1 to 23 microns 64

E

ECKERT, E. R. G.
Experimental study of the effects of non-uniform wall temperature on heat transfer in laminar and turbulent axisymmetric flow along a cylinder 349
Laminar skin friction and heat transfer on flat plates with wedge-shaped grooves in flow direction 325
Pressure drop and heat transfer in a duct with triangular cross section 125

EDWARDS, D. K.
Geometric factors for radiative heat transfer through an absorbing medium in Cartesian co-ordinates (D) 368

EHRENBURG, F.
Spectral characteristics of fabrics from 1 to 23 microns 64

EICHHORN, R.
Effect of mass transfer on free convection 260
Experimental study of the effects of non-uniform wall temperature on heat transfer in laminar and turbulent axisymmetric flow along a cylinder 349

ELROD, H. G., JR.
Improved lumped parameter method for transient heat conduction calculations 181

EMISSIVITY. *See* HEAT TRANSFER

ENGLAR, K. G.
Nozzle wall materials 159

F

FABRICS. *See* TEXTILES

FINS. *See* HEAT-EXCHANGE EQUIPMENT

FLOW OF FLUIDS. *See also* BOUNDARY LAYER, HEAT TRANSFER, VIBRATION
Combined free and forced-convection heat-generating laminar flow inside vertical pipes with circular sector cross sections 227
Effect of vapor drag on rotating condensation 71
Experimental study of the effects of non-uniform wall temperature on heat transfer in laminar and turbulent axisymmetric flow along a cylinder 349
Heat transfer in flow through rotating ducts 139
Influence of free stream turbulence on the local heat transfer from cylinders 101
Mass transfer, flow, and heat transfer about a rotating disk 294
On the variable-density single-fluid model for two-phase flow 255
Pressure drop and heat transfer in a duct with triangular cross section 125
Steam slip—theoretical prediction from momentum model 113
Variable density single-fluid model for two-phase flow with particular reference to steam-water flow 265

FLUID FRICTION
Heat-transfer and flow-friction characteristics of crossed-rod matrices 199
Laminar skin friction and heat transfer on flat plates with wedge-shaped grooves in flow direction 325
Pressure drop and heat transfer in a duct with triangular cross section 125
Steam slip—theoretical prediction from momentum model 113
Sublimation mass transfer through compressible boundary layers on a flat plate 313

FREEZING. *See* CASTING, HEAT TRANSFER

FRICTION. *See* FLUID FRICTION

FURNACES
Geometric factors for radiative heat transfer through an absorbing medium in Cartesian co-ordinates 360

G

GARDNER, KARL A.
Thermal-contact resistance in finned tubing 279

GARDON, ROBERT
Transducer for the measurement of heat-flow rate 396

GARTRELL, H. E.
Interferometric method of studying boundary-layer oscillations 263

GAS-LIQUID MIXTURES. *See* FLOW OF FLUIDS

GASES. *See also* HEAT TRANSFER
Certain thermodynamic and transport properties of the atmospheres of Venus, Mars, and Jupiter 381
Measurement of the thermal conductivities of gases at high temperature 48
Radiant interchange within an enclosure
Part 1 Absorption and emission behavior of gases 1
Part 2 General interchange equations .. 8
Part 3 A method for solving multinode networks and a comparison of the band energy and gray radiation approximations 14

GIEDT, W. H.
Heat transfer to boiling mercury 387

GIER, J. T.
Spectral characteristics of fabrics from 1 to 23 microns 64

GRAHAM, R. W.
Rocket-engine heat sources 155

GREGG, J. L.
Effect of vapor drag on rotating condensation 71
Mass transfer, flow, and heat transfer about a rotating disk 294
Nearly quasi-steady free convection heat transfer in gases 258

(D) denotes discussion of a paper.

GROSH, R. J.
A tabulation of the function exp X^2 erfc X 75

H

HEAT-EXCHANGE EQUIPMENT
Radiation fin effectiveness 73
Thermal-contact resistance in finned tubing 279

HEAT TRANSFER. *See also* BOUNDARY LAYER, LIQUID METALS, PHYSIOLOGY
Apparent emissivity and heat transfer in a long cylindrical hole 253
Application of variational methods to radiation heat-transfer calculations 375
Certain thermodynamic and transport properties of the atmospheres of Venus, Mars, and Jupiter 381
Combined free and forced-convection heat-generating laminar flow inside vertical pipes with circular sector cross sections 227
Comparison of turbulent heat-transfer results for uniform wall heat flux and uniform wall temperature 152
Conical turbulent boundary-layer experiments and a correlation with flat plate data 94
Effect of mass transfer on free convection 260
Effect of thermocouple cavity on heat sink temperature 27
Effect of vapor drag on rotating condensation 71
Experimental study of the effects of nonuniform wall temperature on heat transfer in laminar and turbulent axisymmetric flow along a cylinder 349
Experiments on heat transfer from spheres including combined natural and forced convection 214
Freezing of a growing liquid column 37
Geometric factors for radiative heat transfer through an absorbing medium in Cartesian co-ordinates 360
Heat transfer and effectiveness for a turbulent boundary layer with tangential fluid injection 303
Heat-transfer and flow-friction characteristics of crossed-rod matrices 199
Heat transfer by laminar flow from a rotating cone 252
Heat transfer from transverse and yawed cylinders in continuum, slip, and free molecule air flows 77
Heat transfer in flow through rotating ducts 139
Heat transfer to boiling mercury 387
Heat transfer to Freon 12 near the critical state in a natural-circulation loop 221
Heat transfer to fully developed laminar flow in a circular tube with arbitrary circumferential heat flux 108
Improved lumped parameter method for transient heat conduction calculations 181
Influence of free stream turbulence on the local heat transfer from cylinders 101
Laminar skin friction and heat transfer on flat plates with wedge-shaped grooves in flow direction 325
Laminar transfer from isothermal spanwise strips on a flat plate 53
Local and average heat transfer and pressure drop for refrigerants evaporating in horizontal tubes 189
Magnetohydrodynamic effects upon heat transfer for laminar flow across a flat plate 87
Mass transfer, flow, and heat transfer about a rotating disk 294
Measurement of the thermal conductivities of gases at high temperature 48
Mechanisms of sound field effects on heat transfer 303
Nearly quasi-steady free convection heat transfer in gases 258
Numerical solutions to an inverse problem of heat conduction for simple shapes 20
On combined free and forced convection in channels 233
Pressure drop and heat transfer in a duct with triangular cross section 125
Radiant interchange within an enclosure
Part 1 Absorption and emission behavior of gases 1
Part 2 General interchange equations 8
Part 3 A method for solving multinode networks and a comparison of the band energy and gray radiation approximations 14
Rocket heat-transfer literature 155
Sublimation mass transfer through compressible boundary layers on a flat plate 313
Summary of experiments on turbulent heat transfer from a nonisothermal flat plate 341

HEAT TRANSFER (*continued*)
Tabulation of the function exp X^2 erfc X 75
Temperature distribution and heat-transfer results for an internally cooled, heat-generating solid 389
Thermal radiation from a cylindrical enclosure with specified wall heat flux 369
Transducer for the measurement of heat-flow rate 396
Unsteady turbulent heat transfer in tubes 170

HOAGLAND, L. C.
Pressure drop and heat transfer in a duct with triangular cross section (D) 136

HOLMAN, J. P.
Heat transfer to Freon 12 near the critical state in a natural-circulation loop 221
Interferometric method of studying boundary-layer oscillations 263
Mechanism of sound field effects on heat transfer 393

HORVAY, G.
Freezing of a growing liquid column 37

HURWICZ, H.
Effect of thermocouple cavity on heat sink temperature 27

I

IBELE, W. E.
Certain thermodynamic and transport properties of the atmospheres of Venus, Mars, and Jupiter 381

IIDA, H. T.
Heat transfer in flow through rotating ducts 139

INJECTION. *See* BOUNDARY LAYER, COOLING SYSTEMS

INSTRUMENTS—TEMPERATURE
Effect of thermocouple cavity on heat sink temperature 27
Spectral characteristics of fabrics from 1 to 23 microns 64
Transducer for the measurement of heat-flow rate 396

IRVINE, T. F., JR.
Certain thermodynamic and transport properties of the atmospheres of Venus, Mars, and Jupiter 381
Laminar skin friction and heat transfer on flat plates with wedge-shaped grooves in flow direction 325
Pressure drop and heat transfer in a duct with triangular cross section 125

K

KAYS, W. M.
Summary of experiments on turbulent heat transfer from a nonisothermal flat plate 341

KERN, D. Q.
Thermal-contact resistance in finned tubing (D) 290

KLINE, S. J.
Summary of experiments on turbulent heat transfer from a nonisothermal flat plate 341

KREITH, FRANK
Heat transfer in flow through rotating ducts 139
Sublimation mass transfer through compressible boundary layers on a flat plate (D) 324

KUO, C. Y.
Heat transfer in flow through rotating ducts 139

L

LAURENCE, JAMES C.
Heat transfer from transverse and yawed cylinders in continuum, slip, and free molecule air flows 77

LEVY, S.
Steam slip—theoretical prediction from momentum model 113

LILEY, P. E.
Certain thermodynamic and transport properties of the atmospheres of Venus, Mars, and Jupiter (D) 386

LIQUID METALS
Freezing of a growing liquid column 37
Heat transfer to liquid metals with variable properties 333

LONDON, A. L.
Heat-transfer and flow-friction characteristics of crossed-rod matrices 199

LU, PAU-CHANG
Combined free and forced-convection heat-generating laminar flow inside vertical pipes with circular sector cross sections 227

LYON, RICHARD N.
Heat transfer to liquid metals with variable properties (D) 339

M

MCCUTCHAN, J. W.
Prediction of human thermal tolerance when using a ventilating garment with an antiexposure suit 243

MCMANUS, H. N., JR.
Flow separation and acoustic effects 166

MAGNETOHYDRODYNAMICS
Magnetohydrodynamic effects upon heat transfer for laminar flow across a flat plate 87

MASS TRANSFER. *See also* FLOW OF FLUIDS, HEAT TRANSFER
Laminar transfer from isothermal spanwise strips on a flat plate 53

MATHEMATICS
Application of variational methods to radiation heat-transfer calculations 375
Geometric factors for radiative heat transfer through an absorbing medium in Cartesian co-ordinates 360
Improved lumped parameter method for transient heat conduction calculations 181
On combined free and forced convection in channels 233
Tabulation of the function exp X^2 erfc X 75

MATRICES. *See* SCREENS

MAUCH, H. A.
Prediction of human thermal tolerance when using a ventilating garment with an antiexposure suit (D) 250

MERCURY
Heat transfer to boiling mercury 387

METALS. *See* LIQUID METALS

MIRSEPASSI, T. J.
Numerical solutions to an inverse problem of heat conduction for simple shapes (D) 25

MITCHELL, J. W.
Heat-transfer and flow-friction characteristics of crossed-rod matrices 199

MIXTER, GEORGE, JR.
Role of the skin in heat transfer (D) 241

MODELS. *See* FLOW OF FLUIDS

MOMENTUM EXCHANGE. *See* FLOW OF FLUIDS

MORRELL, G.
Rocket-engine heat sources 155

N

NORRIS, R. H.
Local and average heat transfer and pressure drop for refrigerants evaporating in horizontal tubes 189

NOZZLES
Nozzle wall materials (a literature survey) 155

O

OPPENHEIM, A. K.
Geometric factors for radiative heat transfer through an absorbing medium in Cartesian co-ordinates 360

OSCILLATION. *See* BOUNDARY LAYER

P

PHYSIOLOGY
Prediction of human thermal tolerance when using a ventilating garment with an antiexposure suit 243
Role of the skin in heat transfer 239

PIPE AND PIPING. *See also* FLOW OF FLUIDS, HEAT TRANSFER
Heat transfer in flow through rotating ducts 139

PLANETARY ATMOSPHERES. *See* GASES

PLATES. *See* BOUNDARY LAYER, HEAT TRANSFER

(D) denotes discussion of a paper.

R

RADIATION. *See* HEAT TRANSFER

REFRIGERANTS
- Heat transfer to Freon 12 near the critical state in a natural-circulation loop 221
- Local and average heat transfer and pressure drop for refrigerants evaporating in horizontal tubes 189

REYNOLDS, W. C.
- Heat transfer to fully developed laminar flow in a circular tube with arbitrary circumferential heat flux 108
- Summary of experiments on turbulent heat transfer from a nonisothermal flat plate 341

ROBINSON, J. H.
- Nozzle wall materials 159

ROCKETS
- Rocket heat-transfer literature 155

ROMIE, F. E.
- Heat transfer to boiling mercury 387

S

SAGE, B. H.
- Influence of free stream turbulence on the local heat transfer from cylinders (D) .. 107

SANDBORN, VIRGIL A.
- Heat transfer from transverse and yawed cylinders in continuum, slip, and free molecule air flows 77

SCHMIDT, JOHN E.
- Transient temperatures and thermal stresses in hollow cylinders due to heat generation 273

SCREENS
- Heat-transfer and flow-friction characteristics of crossed-rod matrices 199

SEBAN, R. A.
- Effects of initial boundary-layer thickness on a tangential injection system 392
- Heat transfer and effectiveness for a turbulent boundary layer with tangential fluid injection 303
- Influence of free stream turbulence on the local heat transfer from cylinders 101

SELLERS, W. H.
- Radiation fin effectiveness 73

SHERWOOD, T. K.
- Sublimation mass transfer through compressible boundary layers on a flat plate 313

SIEGEL, R.
- Comparison of turbulent heat-transfer results for uniform wall heat flux and uniform wall temperature 152
- Thermal radiation from a cylindrical enclosure with specified wall heat flux 369
- Unsteady turbulent heat transfer in tubes 170

SMITH, ENNIS C.
- Thermal-contact resistance in finned tubing (D) 291

SOEHNGEN, ERICH E.
- Flow separation and acoustic effects 166
- Interferometric method of studying boundary-layer oscillations 263

SOGIN, H. H.
- Laminar transfer from isothermal spanwise strips on a flat plate 53

SONNEMANN, GEORGE
- Transient temperatures and thermal stresses in hollow cylinders due to heat generation 273

SOUND. *See* HEAT TRANSFER, VIBRATION

SPARROW, E. M.
- Apparent emissivity and heat transfer in a long cylindrical hole 253
- Application of variational methods to radiation heat-transfer calculations 375

SPARROW (*continued*)
- Comparison of turbulent heat-transfer results for uniform wall heat flux and uniform wall temperature 152
- Effect of vapor drag on rotating condensation 71
- Heat transfer to fully developed laminar flow in a circular tube with arbitrary circumferential heat flux (D) 112
- Heat transfer to liquid metals with variable properties (D) 339
- Mass transfer, flow, and heat transfer about a rotating disk 294
- Nearly quasi-steady free convection heat transfer in gases 258
- Numerical solutions to an inverse problem of heat conduction for simple shapes (D) 25
- Role of the skin in heat transfer (D) 241
- Temperature distribution and heat-transfer results for an internally cooled, heat-generating solid 389
- Unsteady turbulent heat transfer in tubes 170

SPECTRAL MEASUREMENTS. *See* INSTRUMENTS—TEMPERATURE

SPHERES
- Experiments on heat transfer from spheres including combined natural and forced convection 214

STAUB, F. W.
- Local and average heat transfer and pressure drop for refrigerants evaporating in horizontal tubes 189

STEAM SLIP. *See* FLUID FRICTION

STEAM-WATER MIXTURES. *See* FLOW OF FLUIDS

STOLL, A. M.
- Role of the skin in heat transfer 239

STOLZ, G., JR.
- Numerical solutions to an inverse problem of heat conduction for simple shapes 20

SUNDERLAND, J. E.
- A tabulation of the function $\exp X^2 \operatorname{erfc} X$ 75

SUTHERLAND, W. A.
- Heat-transfer and flow-friction characteristics of crossed-rod matrices 199

T

TAO, L. N.
- On combined free and forced convection in channels 233

TAYLOR, J. H.
- Heat transfer in flow through rotating ducts 139

TEXTILES
- Spectral characteristics of fabrics from 1 to 23 microns 64

THERMAL CONDUCTIVITY. *See* GASES, HEAT TRANSFER

THERMAL STRESSES
- Transient temperatures and thermal stresses in hollow cylinders due to heat generation 273

THERMODYNAMICS
- Certain thermodynamic and transport properties of the atmospheres of Venus, Mars, and Jupiter 381

THOMSEN, JOHN S.
- Improved lumped parameter method for transient heat conduction calculations (D) 187

TIEN, C. L.
- Heat transfer by laminar flow from a rotating cone 252

TOULOUKIAN, Y. S.
- Heat transfer to liquid metals with variable properties 333

TRANSDUCERS. *See* INSTRUMENTS—TEMPERATURE

TRÄSS, OLEV
- Sublimation mass transfer through compressible boundary layers on a flat plate 313

TUBES. *See* HEAT-EXCHANGE EQUIPMENT, HEAT TRANSFER

TURBULENCE. *See* BOUNDARY LAYER

TURNACLIFF, R. D.
- Rocket cooling techniques 158

U

USISKIN, C. M.
- Thermal radiation from a cylindrical enclosure with specified wall heat flux 369

V

VAPOR DRAG. *See* FLOW OF FLUIDS

VENTILATION. *See* PHYSIOLOGY

VIBRATION
- Flow separation and acoustic effects (a literature survey) 155

VINES, ROBERT G.
- Measurement of the thermal conductivities of gases at high temperatures 48

VISCOSITY
- Certain thermodynamic and transport properties of the atmospheres of Venus, Mars, and Jupiter 381

VISKANTA, R.
- Application of variational methods to radiation heat-transfer calculations (D) 380
- Heat transfer to liquid metals with variable properties 333

VORTEXES
- Heat transfer in flow through rotating ducts 139

W

WEBER, H. E.
- Heat transfer and effectiveness for a turbulent boundary layer with tangential fluid injection (D) 312

WIND TUNNELS
- Influence of free stream turbulence on the local heat transfer from cylinders 101

WOODCOCK, ALAN H.
- Role of the skin in heat transfer (D) 241

WORSOE-SCHMIDT, P.
- Local and average heat transfer and pressure drop for refrigerants evaporating in horizontal tubes (D) 197

Y

YANG, KWANG-TZU
- Unsteady turbulent heat transfer in tubes (D) 179

YUGE, T.
- Experiments on heat transfer from spheres including combined natural and forced convection 214

Z

ZUBER, NOVAK
- On the variable-density single-fluid model for two-phase flow 255

(D) denotes discussion of a paper.